50X1-HUM

CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

SECRET/CONTROL - U.S. OFFICIALS ONLY
SECURITY INFORMATION

50X1-HUM

COUNTRY East Germany

SUBJECT Werk fuer Fernmeldewesen HF
Development of Discharge Lamps

DATE OF INFO.

PLACE ACQUIRED

REPORT

DATE DISTR. 14 October 1953

NO. OF PAGES 2

REQUIREMENT 50X1-HUM

REFERENCES

50X1-HUM

THE SOURCE EVALUATIONS IN THIS REPORT ARE DEFINITIVE.
THE APPRAISAL OF CONTENT IS TENTATIVE.
(FOR KEY SEE REVERSE)

50X1-HUM

1. In May 1953, the discharge lamp section of Werk fuer Fernmeldewesen HF, headed by Ihln, moved to its former location, the BGW (Berliner Gluehlampenwerk), Berlin O 17, Warschauerstrasse.

2. The department employs about 18 men, all engaged in the development of discharge lamps. Work has been disrupted by the move to BGW and was not normal even by the end of July 1953.

3. Xenon arc lamp XBO 500.

   a. The department recently developed the XBO 500 lamp. This is a xenon-filled arc discharge lamp which is similar to that of an Osram type. It is filled with xenon at 15 atmospheres pressure. In use, the pressure increases correspondingly to the temperature rise. The lamp has an external temperature of 650° C in use. It works without any cooling and has electrodes of thoriated tungsten at a distance apart of 4 mm. The anode has a rejuvenated point on a cylindrical part: a pure tungsten spiral is wound round this. Between the spiral and the point is a paste of equal parts of barium and thorium. The point is broadened like an arrow to increase its temperature.

   b. 120 of these lamps are to be produced in 1953 or. Up to now, 40% of the lamps produced have been useable.

4. Flash-light lamps XIE 3000 and XIE 6000.

   a. In 1952, the department had a development order for the USSR. The Russian acceptance official for this task, who spoke fluent German was Marshak (fnu).

50X1-HUM

   b. A total of 20 flash-light lamps, part of them XIE 3000 and the others XIE 6000, were supplied to the USSR.

SECRET/CONTROL - U.S. OFFICIALS ONLY

STATE	x	ARMY	x	NAVY	x	AIR	x	FBI		AEC		ORR Ev	x	

(Note: Washington Distribution Indicated By "X"; Field Distribution By "#".)

c. Description

The lamp itself was composed of a quartz tube, 30 mm in diameter by about one meter in length, that turned over in a 3-4 part spiral. The upper end of the tube ran through the middle of the spiral to the lower end. A hard glass cylinder, approximately 150 mm in diameter and 250 mm long, enclosed the spiral and served as conduction for cooling air. The electrode interval is 100 mm. The dimensions of the XIE 3000 were somewhat smaller. Xenon pressure was 300. The electrodes were made of hammered tungsten; their measurements were 6 mm in diameter and 100 mm long. The sealing of the electrodes took place by means of tungsten-fused glass and three quartz transition glasses C1, C2, and C3. Some of the glasses were produced by the OSW. Quartz tubes were also supplied by the quartz processing plant at Staaken.

d. The oil condensers needed for these lamps were supplied by Marshak from the USSR. They had a capacity of 2000 uF at an operating potential of 7.5 kV. Marshak supplied 60 condensers, but there was a reject rate of nearly 50% because the condensers were originally meant for an operating potential of 4 kV only. The discharge of the condensers occurred in 2 msecs, so that there was a free energy of 6000 Wsec (correspondingly, of 3000 Wsec in the XIE 3000). Discharge time was measured with rotating photographic paper. The lamps could give 6 flashes a minute. The life of a lamp was calculated at about 10,000 flashes.

e. The lamps were tested with a HT generator and the condensers delivered by the Russians. The HT generators were not, however, part of the delivery. The Russians were satisfied with the lamps.

50X1-HUM

(1) Comment: The following abbreviations are used by the department in describing lamps:

B = Bogenlampe = arc lamp
E = Entladungslampe = discharge lamp
F = Flutlicht = flood-light
H = Hochdruck = high pressure
I = Impuls = impulse
O = ohne Kuehlung = without cooling
Q = Quecksilber = quicksilver
X = Xenon = xenon
Z = Zirkon = zirconium